

Science and common beliefs

In his article "Oil on Troubled Waters: Benjamin Franklin and the Honor of Dutch Seamen" (PHYSICS TODAY, January 2006, page 36), Joost Mertens illustrates how in the 18th century science still had to struggle for recognition in a societal environment accustomed to time-honored and dependable crafts and trades. This was certainly the case in hydrology, with the different speculations regarding the origin of springs and rivers. Apparently, in the 17th century it was already the "common opinion"¹ of most ordinary people, in Western Europe at least, that springs and rivers are produced by the infiltration and percolation of rainfall and of other precipitation into the ground. The correctness of this view should perhaps not be surprising because to the ordinary folk, who had to deal with agricultural drainage and flood and drought protection for their daily bread and survival, rain and snowmelt were the most obvious and visible sources of all the wetness in their environment. But evidently at the time,² to many establishment scientists—such as Pierre Perrault,¹ brother of a founding mem-

ber of France's Royal Academy of Sciences; Philippe de la Hire, a member of the academy; and Edmund Halley and John Woodward, both fellows of the Royal Society of London—that explanation was much too simplistic. Surely more ingenious and intricate mechanisms, like seawater filtration and various kinds of vapor transport and condensation inside and on mountains, had to be at work.

Although several learned individuals, among them Edme Mariotte, John Ray, and Pieter Van Musschenbroek, promoted the common opinion, the general uncertainty lingered for many years, it seems. Nearly 150 years later at the dawn of the 19th century, John Dalton still felt obliged to write: "Naturalists, however, are not unanimous in their opinions whether the rain that falls is sufficient to supply the demands of springs and rivers, and to afford the earth besides such a large portion for evaporation as it is well known is raised daily."³ But by then the issue was essentially settled, and it was probably one of the last instances in which any alternative mechanisms were mentioned in the scientific literature.

References

1. [P. Perrault], *De l'origine des fontaines* (1674).

2. W. Brutsaert, *Hydrology: An Introduction*, Cambridge U. Press, New York (2005), p. 557.
3. J. Dalton, *Mem. Lit. Phil. Soc. Manchester* 5(2), 346 (1802).

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Corrections

December 2006, page 8—The distance in parentheses in the last line of the third column should read 89 000 light years.

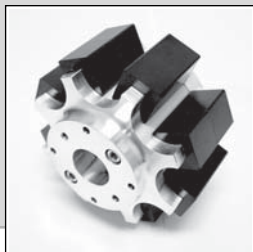
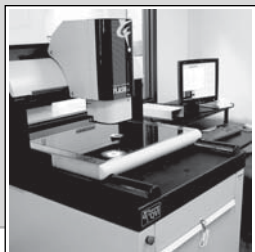
December 2006, page 9—The equation in the second column should read $MG = V^2 r$.

December 2006, page 46—The scale bar label in figure c of box 2 should read 1 mm.

December 2006, page 60—In the review of *Introduction to Microfluidics*, the sixth sentence in the sixth paragraph should begin, "Although droplet motion by surface-energy gradients is also considered. . . ." The first sentence in the eighth paragraph should begin, "The same qualities then that make the book an entertaining and painless entrée into the field of microfluidics, however, may leave physics students dissatisfied. . . ." ■

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